

Amendments to the Specification:

Please insert the following paragraphs on page 2, between lines 22 and 23, in the “BRIEF SUMMARY OF THE INVENTION” section:

According to one aspect, an article of manufacture, comprises a machine-readable medium having instructions stored thereon to cause a processor to encode multiple video outputs from common input video data, by: determining data producer and data user relationships between encoder components; directing output produced from a first encoder component to a second encoder component in a same first encoder; directing the output produced from the first encoder component to another encoder component in a second encoder different from the first encoder; and using the output from the first encoder component in the second encoder component and producing output from the second encoder that is modified from the output produced by the first encoder.

In one aspect of the article of manufacture, producing output from the first encoder component includes producing full motion estimation data, and using the output from the first encoder component in the second encoder component includes using at least some of the produced motion estimation data to locate an approximate location of a block of pixels in a frame without performing full motion estimation.

In one aspect of the article of manufacture, the motion estimation data includes motion vector information.

In one aspect of the article of manufacture, the machine-readable medium further has instructions stored thereon to cause the processor to encode multiple video outputs from common input video data, by: temporally sub-sampling video frames of the common input video source to reduce a frame rate; converting a color format of the video frames from a first format to a second format; and hierarchically Human Visual System (HVS)-based pre-processing the video frames to obtain different bit rates and to remove high frequency information from the video frames.

In one aspect of the article of manufacture, the machine-readable medium further has instructions stored thereon to cause the processor to encode multiple video outputs from common input video data, by adapting the hierarchical HVS-based pre-processing based on outputs from subsequent encoder component processing.